

TenarisHydril Premium Connections Approved Thread Compounds

TenarisHydril Connection	Material Group	API Modified Leaded	Lead & Zinc Free	Metal Free																
		Any API Modified(*)	Bestolife 2000® (3)	Bestolife 2000® Arctic Grade	Bestolife 2010® NM ULTRA	Bestolife 2020®	Bestolife 4040 NM	Bestolife PTC (4)	JET-LUBE® SEAL-GUARD™	JET-LUBE® SEAL-GUARD™ ECF™	JET-LUBE® RUN-N-SEAL® ARTIC	JET-LUBE® RUN-N-SEAL® Extreme	Liquid-O-Ring® 318	Liquid-O-Ring® 304	Shell Malleus 0459	Shell Malleus TC	TOPCO Green-Seal II	TOPCO Green-Seal II Thermal	TOPCO Tenaris Blue Premium Special (2)	TOPCO TK II Modified
Specific Gravity (gr./cm3)		1.97	1.25	1.20	1.28	1.19	1.20	1.10	1.28	1.28	1.23	1.25	1.16	0.98	1.50	1.63	1.08	1.12	1.25	1.92
Torque Factor		1.00	1.00	1.00	1.00	1.10	1.00	0.90	1.00	1.00	1.20	1.10	1.01	0.60	0.95	0.93	0.74	0.74	1.00	1.10
TSH BLUE ≤ 5 1/2"	All	0			0(****)			0		0										
TSH BLUE > 5 1/2"	All	0						0		0			0		0	0				0
TSH BLUE/A	All	0																		
TSH BLUE TL	CSLA	0	0					0		0					0		0	0	0	0
TSH BLUE NF	CSLA & 13Cr	0						0		0					0					0
TSH BLUE Riser	CSLA	0	0					0 (TF:1.00)		0										
TSH BLUE Max	CSLA	0								0										
TSH BLUE QS	CSLA	0								0										
TSH BLUE HW	ALL	0						0		0			0		0	0				0
TSH ER	CSLA	0	0	0 (TF:0.9)				0		0					0		0	0	0	0
TSH MS / MS XT/XC	CSLA & 13Cr	0						0							0					0
TSH MS28 / MS28 XT/XC	ALL	0						0							0					0
TSH CCJ	CSLA	0																		
TSH 35B	ALL	0						0							0					0
TSH 35B/A	ALL	0																		
TSH HW	ALL	0																		
TSH HWSL / NewHWSL	ALL	0																		
TSH EL	ALL	0																		
TSH SLX	ALL	0						0		0			0				0	0	0	0
TSH PH/CS Series	ALL	0						0		0			0				0	0	0	0
TSH MAC-II	ALL	0						0		0			0				0	0	0	0
TSH WEDGE 425	ALL	0	0	0																
TSH WEDGE 441	CSLA	0	0	0																
TSH WEDGE 461	CSLA	0	0	0																
TSH WEDGE 463	CSLA	0	0	0																
Wedge Series 500™	ALL	0	0	0	0	0		0	0	0 (5)		0					0	0	0	0
TSH WEDGE 625	ALL	0	0	0	0	0		0	0	0 (5)		0					0	0	0	0
TSH WEDGE 613	ALL	0																		
TSH WEDGE 623	ALL	0																		
TSH WEDGE 624	ALL	0																		
TSH WEDGE 667	ALL	0																		
IPSCO	BPN, ULTRA™ and TORQ®	All	0	0																
API Improved	TXP BTC	CSLA	0	0	0	0		0			0	0								
	TXP BTC LW	CSLA	0	0	0	0		0			0	0								
Drill Pipe	TSH WT	CSLA	0					0												
Weld-on Connectors	TSH Blue Dock & TSH EasyDock	CSLA	0	0						0			0	0			0			

0 : Applicable for all the available materials for the corresponding connection.
 O : only applicable for CSLA (Carbon Steel Low Alloys) and 13% Cr materials (Super 13 Chrome materials are not included).

How to applied the Torque Factor:
 Example: (7" x 26.0# N80 TenarisHydril Blue® using Best-O-Life PTC Thread Compound):

Torque Factor Interpretation:
 Tabulated Torque Value (1) * Torque Factor = Applicable Torque Value.
 9010 ft-lb * 0.9 = 8100 ft-lb (50 ft-lb rounding is allowed)

(*) Any brand that fulfils the chemical composition stated in API RP 5A3 Annex A, including Bestolife 72733 / 72732 or JET-LUBE® API Modified.

(**) Wedge Family torque factor equals to 1.00 for all the Dope-Connection Available combination

(***) Dope only applicable for 4 1/2" and 5 1/2" casing products.

Standard Thread compound used by Tenaris

Connection designed for Dopeless®, Dope version only available upon specific request.

For TSH Blue/A and TSH 35B/A only Bestolife™ 72733 shall be used.

(1) Torque obtained from the Technical Data Sheet on the Tenaris.com site (<http://dcp.tenaris.com/>)

(2) For Thermal Operation shall be applied TOPCO Tenaris Blue Premium Special.

(3) Also valid for equivalent thread compound formulation (CRASSUS TC API PLUS)

(4) Also valid for equivalent thread compound formulation (CRASSUS TC Premium)

(5) Use of this thread compound may produce inconsistent make-up charts. Thread compound is only acceptable for use where local environmental regulation limits the use of other thread compound in this list.

NOTE 1 Tenaris Affiliates shall use *PRD06211 "Definition of Thread Compound to be used by Tenaris units"*.

NOTE 2 For other thread compounds not included in the list, contact MASE through TLN for licensees or licensees@oilfield.tenaris.com for others. Other compounds would require full scale testing to determine their approval and torque factor.

Yellow-shaded corresponds to Modified from Previous document Revision.

Thread compounds eliminated from previous version:

Jet-Lube Enviro-Safe™, Jet-Lube® Steam Chief™, Mercasol 633 SR (MMW), Weatherford ELS325AG.

IDM Code: FTD29356